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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,602	07/05/2005	Hong-Sick Park	8071-152T	7109

7590 06/22/2007

F. Chau & Associates, LLC
130 Woodbury Road
Woodbury, NY 11797

EXAMINER	
MULPURI, SAVITRI	
ART UNIT	PAPER NUMBER
2812	
MAIL DATE	DELIVERY MODE
06/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/516,602	PARK ET AL.	
	Examiner	Art Unit	
	Savitri Mulpuri	2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 3--22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/11/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Prosecution Application

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/11/2007 has been entered.

Information Disclosure Statement

The information disclosure statement (IDS) filed on 6/11/2007 was considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chae (US 6,919,931) in combination with Kelly et al (US 6,524,663) and Kodas et al (US 2003/0124259A).

Chae teaches a method of manufacturing and a thin film transistor device for array panel, the method comprising:

Forming a gate wire on an insulating substrate "22", the gate wire including a gate line "13", a gate electrode"26", and a gate pad"41";

With respect to claims 4-9, sequentially depositing agate insulating layer ""51", an amorphous silicon layer "53", and ohmic contact layer"55" on the gate wire;

Patterning the ohmic contact layer and the amorphous layer by photolithography;

forming a data wire on the ohmic contact layer, and the adapt wire including source and drain electrodes "28,30", a data line "15" , data pad (not shown);

forming a protective layer "57"on the data wire, the protective layer having a first contact hole "59" exposing the drain electrode, a second contact hole exposing t he gate pad "61"and a third contact hole exposing the data pad (not shown) and;

forming pixel electrode"17", a subsidiary gate pad or transparent pad electrode "43" on gate pad "41", add subsidiary data pad or transparent pad electrode (not shown) on data pad on the protective layer, the pixel electrode being connected to the drain electrode through first contact hole, the subsidiary gate pad being connected to the gate pad through the second contact hole, the subsidiary data pad being connected to the data pad through the third contact hole (see fig 22,3 4A-5 and related description).

With respect to claim 9 Chae also teaches forming protective layer with prominent and depressed portions

Chae does not teach forming an organometallic layer by coating a photosensitive organometallic complex; placing a photomask over the oragnometallic layer such that a predetermined region of the oragnometallic is exposed; exposing the organometallic layer to the light through a photomask; and developing the organometallic layer.

Kelly et al teaches a method of forming a metal pattern for integrated circuits comprising: forming an organ metallic layer by coating a photosensitive organometallic complex; exposing the organometallic layer to light through a photomask; and forming a metal a pattern by developing the organometallic layer(see abstract and col1, lines 46-54). Kelly further teaches making integrated circuits by forming metallization by using organic metal compounds, wherein metals includes Cu Ni, gold , or any other suitable metals (see col. 8, lines 47-50; col. 9, lines 46-49 It would have been obvious to one of ordinary skill in the art to form metal pattern in the invention of Chae by forming organometallic layer by coating a photosensitive organometallic complex and exposing the organometallic layer to light through photomask and developing and forming a metal pattern by developing the organometallic layer because such process is electroless plating and gives good quality result and metal pattern can be formed on the insulator or on the semiconductor or on the conductors(see col. 1, lines 35-45). Chae in view of Kelly would result the same structure as the structure recited in claims 10-13 (see fig. 2, -4 and related description).

With respect to claims 1, 2-22 neither Chae nor Kelly teaches organic material containing silver or aluminum.

Kodas et al (US 2003/0124259A). teaches metal organic precursor composition containing UV sensitive organic ligand by using organic metallic complex containing silver or aluminum to form metal as a contact on semiconductor materials(see para 0023,para 0049,para0058). Kodas et al also discloses ultraviolet irradiation by using photo mask to form metal pattern (para 0168). It would have been obvious to one of

ordinary skill in the art to form silver or Al metal pattern in the invention of modified invention Chae because Kelly gives a choice of using any other suitable metals alternative disclosed materials such Pd, Pt Ag.

Clearly both Kelly and Kodas (para0168) teach, "the development of organometallic layer is made by way of organic solvent".

Kelly teaches organometallic compound is either in liquid sate or solid state to form metal pattern for integrated circuits by coating a photosensitive organometallic complex; exposing the organometallic layer to light through a photomask; and forming a metal a pattern by developing the organometallic layer(see abstract and col1, lines 46-54). Kelly further teaches making integrated circuits by forming metallization by using organic metal compounds, wherein metals includes Cu Ni, gold , or any other suitable metals (see col. 8, lines 47-50; col. 9, lines 46-49 . Kodas teaches organometallic compound is as organic solvent. It would have been obvious to one of ordinary skill in the art to use organic metallic compound as a liquid or solid state because both forms are suitable to form metal pattern for integrated circuits as taught by Kelly et al or Kodas.

Response to Arguments

Applicant's arguments filed on 3/30/2007 have been fully considered but they are not persuasive. Applicant repeatedly argues that none of the references by Chae Kelly or Kodas teaches the amended limitation of " wherein the development organic layer is made by way of organic solvent". However as addressed above, Kelly teaches organ metallic compound is either in liquid sate or solid state (see abstract). Kodas teaches

organometallic compound is as organic solvent. Modified invention of Chae, as modified by the teaching of Kelly or Kodas would have organometallic compound in the form organic solvent.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Newly cited prior art filed on 6/11/2007, teaches (1) polymer spinner coating to form LCD, (2) photoresist drops discharged from ink head on insulating film for making LCD.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Savitri Mulpuri whose telephone number is 571-272-1677. The examiner can normally be reached on Mon-Fri from 8 a.m. to 4.30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt, can be reached on 571-272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Savitri Mulpuri
Primary Examiner
Art Unit 2812